**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (cancelled)

Claim 2. (previously presented) In direct sequence spread spectrum (DSSS) communications, a method for recovering system timing, the method comprising:

disabling a reference clock during a sleep interval;

following the sleep interval, enabling the reference clock; and

modifying the system timing by a ratio, where the ratio is the reference clock frequency divided by a sleep clock frequency wherein the ratio is adjusted for frequency drift;

measuring a reacquisition error; and

wherein calculating the ratio includes calculating the ratio in response to the reacquisition error.

Claim 3. (cancelled)

Claim 4. (previously presented) In direct sequence spread spectrum (DSSS) communications, a method for recovering system timing, the method comprising:

disabling a reference clock during a sleep interval;

following the sleep interval, enabling the reference clock; and

modifying the system timing by a ratio, where the ratio is the reference clock frequency divided by a sleep clock frequency wherein the ratio is adjusted for frequency drift;

prior to disabling the reference clock, determining the number of sleep clock periods in the sleep interval; and

wherein disabling the reference clock during the sleep interval includes disabling the reference clock for the determined number of sleep clock periods.

Claim 5. (original) The method of claim 4 wherein determining the number of sleep clock periods in the sleep interval includes determining the number of sleep clock periods using the ratio.

Claim 6. (previously presented) In direct sequence spread spectrum (DSSS) communications, a method for recovering system timing, the method comprising:

disabling a reference clock during a sleep interval;

following the sleep interval, enabling the reference clock;

advancing the system timing by a ratio, where the ratio is a nominal reference clock frequency divided by a nominal sleep clock frequency;

calculating the ratio in response to frequency drift of the sleep clock;

measuring a reacquisition error wherein calculating the ratio includes calculating the ratio in response to the reacquisition error;

determining the frequency drift of the sleep clock;

determining the number of sleep clock periods using the ratio in the sleep interval prior to disabling the reference clock wherein disabling the reference clock during the sleep interval includes disabling the reference clock for the determined number of sleep clock periods; and

wherein determining the number of sleep clock periods in the sleep interval includes multiplying the sleep interval, times the nominal reference clock frequency, times the inverse of the ratio as follows:

$$\begin{aligned} N_{sleep\_clk} &= T_{sleep} \text{ x } f_{ref} \text{ x } (1/R) \\ &= T_{sleep} \text{ x } f_{ref} \text{ x } (f_{sleep}'/f_{ref}'). \end{aligned}$$

Claim 7. (original) The method of claim 6 wherein determining the number of sleep clock periods in the sleep interval includes rounding the number of sleep periods down to an integer value of sleep clock periods.

Claim 8. (original) The method of claim 6 wherein advancing the system timing includes advancing the system timing by the product of the number of sleep clock periods in the sleep interval and the ratio as follows:

$N_{ref\_clk\_adj} = N_{sleep\_clk}\ xR$

$= T_{sleep}\ X\ f_{ref}\ X\ (f_{sleep}'/f_{ref}')\ X\ (f_{ref}'/f_{sleep}')$.

Claim 9. (original) The method of claim 8 wherein advancing the system timing by the product of the number of sleep clock periods and the ratio includes rounding the product down.

Claim 10. (original) The method of claim 8 further comprising:

performing an initial calculation of the ratio over an extended period of time.

Claim 11. (original) The method of claim 10 wherein performing an initial calculation includes calculating the ratio by averaging the number of rising and falling edges in a reference clock signal to determine an averaged ratio.

Claim 12. (original) The method of claim 8 wherein determining the drift of the sleep clock frequency during the sleep interval includes approximating the sleep clock frequency drift with a linear function including the ratio as follows:

$\Delta f_{sleep} = (R - r_0) / b$ where the $r_0$ and b are constants.

Claim 13. (original) The method of claim 12 wherein determining the drift of the sleep clock includes adding the frequency drift during the last sleep interval to the accumulated sleep clock frequency drift to obtain the sleep clock frequency drift with respect to the nominal sleep clock frequency.

Claim 14. (original) The method of claim 13 in which a received PN code sequence is accepted in the DSSS communications;

wherein advancing the system timing includes shifting the phase of the PN code sequence; and

the method further comprising:

following the shifting of the phase of the PN code sequence, reacquiring the system time using the shifted PN code sequence and the received PN code sequence; and

wherein, following the measuring of the reacquisition error, modifying the sleep clock frequency drift determination is modified in response to the reacquisition error.

Claim 15. (original) The method of claim 14 wherein measuring the reacquisition error includes measuring the offset between the center of a searching window and correct timing position, δc; and

wherein determining the sleep clock frequency drift includes calculating the sleep clock frequency drift during the previous sleep period $T_{sleep}$ with a linear approximation of the function $\Delta f'_{sleep} = f(\delta c)$, as follows:

$$\Delta f'_{sleep} = (\delta c - c_0) / d$$

where $c_0$ and d are constants.

Claim 16. (cancelled)

Claim 17. (previously presented) In direct sequence spread spectrum (DSSS) communications, a method for recovering system timing, the method comprising:

measuring sleep clock frequency using an initial ratio; disabling a reference clock during a sleep interval; following the sleep interval, enabling the reference clock; advancing the system timing in response to the ratio;

measuring the reference clock frequency and the sleep clock frequency to supply a current ratio;

determining a ratio in response to a previous ratio and the current ratio;

measuring the reacquisition error; and

wherein determining the ratio in response to the previous ratio and the current ratio includes weighting the importance of the current ratio and previous ratio in response to the reacquisition error.

Claim 18. (original) The method of claim 17 further comprising:

performing a calibration measurement of the ratio over an extended period of time; and

wherein measuring the sleep clock frequency using the initial ratio includes using the ratio measured over an extended period of time as the initial ratio.

Claim 19. (original) The method of claim 18 in which the sleep interval is provided;

the method further comprising:

determining the number of sleep clock periods in the sleep interval; and

wherein disabling the reference clock frequency during the sleep interval includes disabling the reference clock for the determined number of sleep clock periods.

Claim 20. (original) The method of claim 19 wherein determining the number of sleep clock periods in the sleep interval includes determining the number of sleep clock periods using the ratio.

Claim 21. (original) The method of claim 20 wherein measuring the current ratio includes averaging the number of rising and falling edges in the reference clock frequency, to determine an averaged ratio; and

wherein measuring the current ratio includes using the averaged ratio.

Claim 22. (original) The method of claim 21 in which the sleep clock and reference clock have nominal frequencies;

wherein determining the number of sleep clock periods in the sleep interval includes multiplying the sleep interval times the nominal reference clock frequency, times the inverse of the ratio as follows:

$$N_{sleep\_clk} = T_{sleep} \times f_{ref} \times (1/R)$$
$$= T_{sleep} \times f_{ref} \times (f_{sleep}'/f_{ref}').$$

Claim 23. (original) The method of claim 22 wherein determining the number of sleep clock periods in the sleep interval includes rounding the number of sleep periods down to an integer value of sleep clock periods.

Claim 24. (original) The method of claim 22 wherein advancing the system timing by the product of the number of sleep clock periods and the ratio includes finding the product as follows:

$$N_{ref\_clk\_adj} = N_{sleep\_clk} \times R$$
$$= T_{sleep} \times f_{ref} \times (f_{sleep}'/f_{ref}') \times (f_{ref}'/f_{sleep}').$$

Claim 25. (original) The method of claim 24 wherein advancing the system timing by the product of the number of sleep clock periods and the ratio includes rounding the product down to an integer value.

Claim 26. (original) In direct sequence spread spectrum (DSSS) communications, a method for recovering system timing, the method comprising:

measuring sleep clock frequency using an initial ratio; disabling a reference clock during a sleep interval; following the sleep interval, enabling the reference clock; advancing the system timing in response to the ratio

measuring the reference clock frequency and the sleep clock frequency to supply a current ratio;

determining a ratio in response to a previous ratio and the current ratio; and

wherein determining the ratio includes determining the ratio in response to a plurality of previous ratios and the current ratio.

Claim 27. (original) In direct sequence spread spectrum (DSSS) communications network, a receiver system for recovering system timing, the receiver system comprising:

a clock system having a first output to provide a reference clock signal with a reference clock frequency and a second output to supply a PN code sequence, the clock system having a first input to accept commands to enable and disable the reference clock and a second input to accept system timing advancement commands;

a sleep clock having an output to provide a sleep clock signal with a sleep clock frequency, less than the reference clock frequency; and

a controller having a first input connected to the clock system first output, a second input connected to the sleep clock output, and a third input to receive reacquisition errors, the controller having a first output connected to the first input of the clock system to disable the reference clock during a sleep interval and to enable the reference clock after the sleep interval, the controller having a second output connected to the second input of the clock system to advance the system timing in response to determining the ratio of reference clock frequency and sleep clock frequency.

Claim 28. (original) The system of claim 27 further comprising:

a searcher having a first input connected to the clock system output to accept a PN code sequence, a second input to accept a received PN code sequence, the searcher reacquiring the received PN code sequence from the clock system shifted PN code sequence, the searcher having an output to supply measured reacquisition errors.

Claim 29. (original) The system of claim 28 wherein the controller uses the reacquisition error to derive the frequency drift of the sleep clock frequency.

Claim 30. (original) The system of claim 29 wherein the controller, in response to deriving the frequency drift of the sleep clock, derives the actual time of the sleep interval.

Claim 31. (original) The system of claim 30 wherein the controller has a fourth input to accept the sleep interval, the controller determining the number of sleep clock periods in the sleep interval and disabling the reference clock for the determined number of sleep clock periods.

Claim 32. (original) The system of claim 31 wherein the controller determines the number of sleep clock periods in the sleep interval by using the ratio.

Claim 33. (original) The system of claim 32 wherein a nominal sleep clock frequency and a nominal reference clock frequency are included; and

wherein the controller determines the number of sleep clock periods in the sleep interval by multiplying the sleep interval times the nominal reference clock frequency, times the inverse of the ratio as follows:

$$N_{sleep\_clk} = \lfloor T_{sleep} \text{ x } f_{ref} \text{ x } (1/R) \rfloor$$
$$= \lfloor T_{sleep} \text{ x } f_{ref} \text{ x } (f_{sleep}'/f_{ref}') \rfloor.$$

Claim 34. (original) The system of claim 33 wherein the controller advances the system timing by finding the product of the number of sleep clock periods times the ratio as follows:

$$N_{ref\_clk\_adj} = \lfloor N_{sleep\_clk} \text{ x } R \rfloor$$
$$= \lfloor \lfloor T_{sleep} \text{ x } f_{ref} \text{ x } (f_{sleep}'/f_{ref}') \rfloor \text{ x } (f_{ref}'/f_{sleep}') \rfloor.$$

Claim 35. (original) The system of claim 34 wherein the controller averages the number of rising and falling edges in the reference clock signal over an extended period of time to determine an averaged ratio; and

wherein the controller uses the averaged ratio as the initial ratio.

Claim 36. (original) The system of claim 34 wherein the controller determines the drift of the sleep clock frequency during the sleep interval by dividing the nominal reference clock frequency by the product of the nominal sleep clock frequency times the ratio, minus one as follows:

$$\Delta f_{sleep} = f_{ref} / \ (f_{sleep} R) - 1.$$

Claim 37. (original) The system of claim 36 wherein the controller determines the drift of the sleep clock frequency during the sleep interval by approximating the sleep clock frequency drift with a linear function including the ratio as follows:

$$\Delta f_{sleep} = (R - r_0) / b$$

where the ro and b are constants.

Claim 38. (original) 'The system of claim 37 wherein the clock system includes a PN code sequence generator operating at a PN generator clock rate, proportionally related to the reference clock frequency; and

wherein the controller advances the system timing by shifting the phase of the PN code sequence.

Claim 39. (original) The system of claim 38 wherein the searcher measures the reacquisition error by measuring the offset between the center of a searching window and correct timing position, δc; and

wherein the controller calculates the sleep clock frequency drift during the previous sleep period $T_{sleep}$ with a linear approximation of the function $\Delta f'_{sleep} = f(\delta c)$, as follows:

$$\Delta f'_{sleep} = (\delta c - c_0) / d$$

where $c_0$ and d are constants.

Claim 40. (original) The system of claim 28 wherein the controller determines the ratio in response to a previous ratio and a current ratio.

Claim 41. (original) The system of claim 28 wherein the controller determines the ratio in response to a plurality of previous ratios and the current ratio.

Claim 42. (original) The system of claim 40 wherein the controller, following the enabling of the reference clock frequency, measures the reacquisition error, and the controller determining the ratio by weighting the importance of current ratio and previous ratio in response to the reacquisition error.

Claim 43. (original) The system of claim 42 wherein the controller performs a calibration measurement of the ratio over an extended period of time, and uses the calibration measurement as the initial ratio.

Claim 44. (original) The system of claim 43 wherein the controller measures the ratio by averaging the number of rising and falling edges in the reference clock signal to determine an averaged ratio, and determines the current ratio by using the averaged ratio.

Claim 45. (previously presented) In direct sequence spread spectrum (DSSS) communications, a method for recovering system timing, the method comprising:

disabling a reference clock during a sleep interval;

following the sleep interval, enabling the reference clock; and

modifying the system timing by a ratio, where the ratio is a frequency of the reference clock, based upon an average of the number of rising and falling edges of the reference clock, divided by the frequency of a sleep clock.

Claim 46. (previously presented) The method of claim [1] 2 wherein the ratio is further adjusted for quantization error.

Claim 47. (previously presented) In direct sequence spread spectrum (DSSS) communications, a method for recovering system timing, the method comprising:

disabling a reference clock during a sleep interval;

following the sleep interval, enabling the reference clock; and

modifying the system timing by a ratio, where the ratio is the reference clock frequency divided by a sleep clock frequency wherein the ratio is adjusted for frequency drift; and

applying an IIR filter to a current and a previous value of the ratio, whereby an error in the ratio is smoothed out.

Claim 48. (previously presented) The method of claim [1] 47, wherein the ratio is further adjusted for quantization error.

Claim 49. (previously presented) In direct sequence spread spectrum (DSSS) communications, a method for recovering system timing, the method comprising:

measuring sleep clock frequency using an initial ratio;

disabling a reference clock during a sleep interval;

following the sleep interval, enabling the reference clock;

advancing the system timing in response to the initial ratio;

measuring the reference clock frequency and the sleep clock frequency, as adjusted for frequency drift, to supply a current ratio;

determining a ratio in response to a previous ratio and the current ratio; and

reducing a quantization error in the initial ratio by averaging both edges of the reference clock.

Claim 50 (new). The method of claim 2 wherein the ratio is further adjusted by an average of a number of rising and falling edges of the reference clock.